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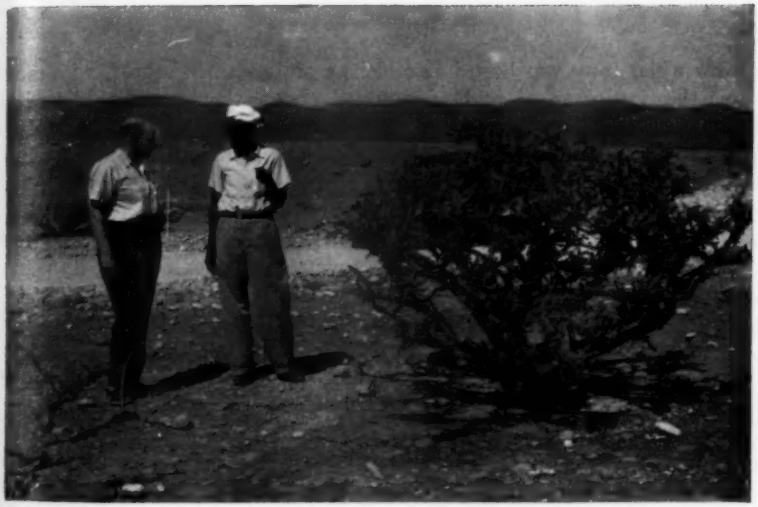

Fig. 1. A frankincense tree, *Boswellia Carterii*, of the plain of Dhofar (courtesy of Ray L. Cleveland).

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Frankincense and Myrrh

GUS W. VAN BEEK

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"Now when Jesus was born in Bethlehem of Judea . . . behold, wise men from the East came . . . and going into the house they saw the child with Mary his mother, and they fell down and worshipped him. Then, opening their treasures, they offered him gifts, gold and frankincense and myrrh."
Matthew 2:1, 11.

Gold, frankincense, and myrrh, gifts worthy of a king! That gold was a treasured gift in antiquity is easily understood by us, because its value today is no less than it was then. But what about frankincense and myrrh? Where the ancients ranked them in value with gold, there is in our time virtually no market for these substances. So great has been their fall from favor that most of us know nothing about them, apart from the words of the Gospel narrative, which do nothing to remove the veil of mystery surrounding them.

But what are these substances which were so widely used and highly prized by ancient man? How and where were they produced? How were they distributed? What uses were made of them in antiquity? What were the cultural, economic, and political effects of the demand for these substances? Not all of these questions can be answered as definitively as we would like; in fact no more than partial answers can be given to any of them at this time. Such answers as we are able to give are based on reports of Egyptian, Palestinian, Mesopotamian, Greek, and Roman authors,

accounts of modern travelers and explorers, archaeological research, and studies by a number of scholars, chiefly Adolph Grohmann and the writer.[1]

Description and Geographical Distribution of Incense Trees

Frankincense and myrrh are fragrant gum-resins. The former varies from pale yellow or green to yellowish-brown in color; it is translucent when gathered and in freshly cut sections, but becomes semi-opaque when pieces rub against one another in transport, producing a fine white dust which covers its surface. It burns readily, giving off a sooty, slightly scented, black smoke; when the flame is extinguished, it smoulders for a considerable time and yields a white, delicately aromatic smoke. Myrrh, on the other hand, is reddish-brown in color; it burns readily giving off little smoke and no soot; when smouldering, it gives off a white, slightly pungent smoke, not nearly as aromatic as that of frankincense.

Both of these gum-resins are obtained from trees. Frankincense of commercial value is produced by two species of the genus *Boswellia*, *B. Carterii* and *B. Frereana*, and possibly by a third *Bhua Dajiana*. The former (fig. 1) lacks a central trunk; its branches spring from near the ground, giving it the appearance of a shrub.[2] Normally it attains a height of only seven or eight feet, but under very favorable conditions, it sometimes reaches a height of about fifteen feet. I have not been able to find an accurate description or to obtain photographs of *B. Frereana*; the reports which I have seen on this species suggest that it has a central trunk and grows to a height of about twenty feet.[3] Lucas states that another kind of frankincense is obtained from the tree *Commiphora Pedunculata* of eastern Sudan and neighboring Ethiopia.[4]

Myrrh is obtained from *Balsamodendron Myrrh*, Nees, (fig. 2) a tree with a central trunk, whose diameter is sometimes as much as one foot, and whose branches circumscribe an area with a maximum diameter of about twenty feet. Its height ranges from about four to fifteen feet, depending on the climate of the area in which it grows. The myrrh tree is in foliage for only a short time after the rainy season, i.e., about the end of August

1. Much of this study is based on two earlier articles by the writer, "Ancient Frankincense-Producing Areas," which appeared as Appendix II in Richard LeBaron Bowen, Jr., and Frank P. Albright, *Archaeological Discoveries in South Arabia* (Baltimore, 1958), pp. 139-42; "Frankincense and Myrrh in Ancient South Arabia," *Journal of the American Oriental Society*, 78:3 (1958), pp. 141-52; the reader is referred to these articles for additional details. The writer also recommends two studies by Adolf Grohmann, *Südarabien als Wirtschaftsgebiet I*, in *Osten und Orient* (Vienna, 1922); and *II*, in *Schriften der Philosophischen Fakultät der Deutschen Universität in Prag*, 13 (Brünn, 1933), pp. 101-31. Unless otherwise noted, the following abbreviations of classical works are used throughout: Theophrastus, for Theophrastus, *Enquiry into Plants*; *Periplus*, for *The Periplus of the Erythraean Sea* (trans. and anno. by W. H. Schoff [New York, 1912]); Pliny, for Pliny, *Natural History*; Strabo, for *The Geography of Strabo*; Diodorus, for *Diodorus Siculus*; Claudius Ptolemy, for *The Geography of Claudius Ptolemy* (trans. by E. L. Stevenson [New York, 1932]); and Celsus, for Celsus, *De Medicina*. With the exception of the *Periplus* and Claudius Ptolemy, the Loeb Edition has been used for classical sources. The writer wishes to express his appreciation to Mr. George Robert Lewis of the Department of Anthropology, Smithsonian Institution, for his assistance in preparing the map which appears in this article.

2. See Bertram Thomas, *Arabia Felix* (New York, 1932), p. 122; and R. E. Drake-Brockman, *British Somaliland* (London, 1912), pp. 256-60, 305-06.

3. *Ibid.*, p. 258.

4. A. Lucas, *Ancient Egyptian Materials and Industries* (London, 1934), p. 92.

or the beginning of September, and when its serrated dark green leaves decay, long thorns appear on the branches.[5] Reasonably faithful representations of myrrh trees by an ancient Egyptian artist are preserved in the Temple of Hatshepsut at Deir el-Baḥari (fig. 3),[6] about which we will have more to say later. Among classical authors, the descriptions of these trees given by Pliny the Elder (XII. xxxi, xxxiv) and Theophrastus (IX. iv. 2-3) most nearly correspond to those of modern explorers.

Frankincense and myrrh are obtained from the trees by tapping, that is by cutting and peeling the bark for a distance of about 5 inches in several places, which permits the gum-resin to exude (fig. 4). The substance hardens upon contact with the air, and forms globules and irregular lumps of varying size, which are sometimes referred to as "tears." The trees are tapped in the summer, usually in May,[7] but during the Roman period, when frankincense was in great demand, the trees were also tapped in the spring to obtain a second crop. In the autumn, the tears are collected and stored. Storage buildings were especially designed for this purpose and were strategically placed in the frankincense country. One of these installations, located in the heart of a frankincense forest at Hanun, approximately 30 air miles north of Salalah, has recently been investigated by Ray Cleveland for the American Foundation for the Study of Man.[8] It consists of a series of nine storage rooms and a larger room on one side, the latter presumably serving as a temporary dwelling for workmen and guards. By winter, the harvest is complete, and the gum-resin is put in bags and shipped. According to Pliny (XII. xxxii. 58-60), this schedule was also followed in antiquity.

Frankincense and myrrh trees are native to only two parts of the world, southern Arabia and northern Somaliland; their restricted distribution seems to be conditioned by the particular combination of moisture (resulting from the southwest monsoon), temperature, and soil which is found only in these regions (fig. 5). Specifically, the frankincense tree of southern Arabia grows only in the Province of Dhofar, between longitude 53° 00′ and 55° 21′ on the coastal plain and the slopes of the Qara mountains.[9] This description agrees almost exactly with that of Pliny the Elder (XII. xxx. 52), the anonymous author of the *Periplus* (pars. 27-30), and Claudius Ptolemy (Book I, XVII; and the 6th map of Asia). The *Periplus*, for example, states that the frankincense country is located in a deep bay called Sachalites, and that frankincense was stored at Syagrus (modern Ras

5. Drake-Brockman, *op. cit.*, pp. 243-50.
6. E. Naville, *The Temple of Deir el-Bahari* III, pls. 78, 79; see also A. Lucas, "Notes on Myrrh and Stacte," *Journal of Egyptian Archaeology*, 23 (1937), p. 29.
7. Thomas, *op. cit.*, p. 122.
8. I should like to thank Dr. Cleveland for permission to include this material from a letter to me dated January 22, 1960.
9. Thomas, *op. cit.*, p. 123.

Fartak) and shipped from a port known as Moscha. In his geography, Claudius Ptolemy is even more explicit regarding the location of this region. In referring to Marinus' mistakes, he notes, "In addition to these mistakes, he gives us some further assignments of localities with which the knowledge of our times does not agree. For example, he places the Bay of Sachalita (...) on the western shore of the promontory of Syagros, but all who navigate these parts unanimously agree with us that it is toward the east from Syagros and that Sachalita is a region of Arabia and from it the Bay of Sachalita takes its name." (Book I, XVII). Strabo, on the other hand, apparently disagrees with other classical authors by stating (16.4.4): "Cattabania (Qataban) produces frankincense, and Chatramotitis (Hadhramaut) produces myrrh." In view of modern exploration, it is clear that either Strabo or his sources are wrong, or that his text has become corrupt in transmission. The products have simply been reversed, so that we must read, "Qataban produces myrrh, and Hadhramaut produces frankincense." Here however, Hadhramaut does not refer to the wadi of that name, but to the ancient kingdom known as Hadhramaut, which included the region of Dhofar—the frankincense region—as shown by several inscriptions found during the excavations at Khor Rori by Frank P. Albright for the American Foundation for the Study of Man in 1952-3.[10] These inscriptions also prove that the name of this region given by both the *Periplus* and Claudius Ptolemy, is correct. In these inscriptions, the land is called S'KL (Sa'kal).

Across the Gulf of Aden in Somaliland, frankincense trees grow in the central and eastern portion of the coastal range of mountains, making their first appearance in the west at a point about eight miles east of Berbera (ancient Malao), and inland on the plateau.[11] This same general region is described by both the author of the *Periplus* and by Strabo. The *Periplus* tells us that frankincense was exported from the following ports: Malao, Mundus, Mosyllum, and the Market of Spices (pars. 8-12). Strabo states that frankincense trees first appear at Pytholäus (probably Ras Khanzira) in an area where myrrh trees also grow, but that they grow exclusively in the river lands to the east (16.4.14).

The myrrh tree is apparently restricted to the west central portion of South Arabia, although there has been so little modern exploration of this region that we are not certain of the limits of the myrrh-producing country. Some authors have reported myrrh trees in the region of Wadi Hadhramaut and as far east as the Qara mountains of Dhofar,[12] but none of these accounts has been confirmed. Van der Muelen photographed a myrrh tree

10. See W. F. Albright's review of J. Ryckmans, *L'institution monarchique en Arabie méridionale avant l'Islam*, in *Journal of the American Oriental Society*, 73 (1953), p. 39, note 7; and Van Beek, "Ancient Frankincense-Producing Areas," *op. cit.*, p. 141.
11. Drake-Brockman, *op. cit.*, pp. 240, 256, 258.
12. Theodore Bent, *Southern Arabia* (London, 1900), p. 253; Doreen Ingrams, "Excursion into the Hajr Province of Hadhramaut," *Geographical Journal*, 98 (1941), pp. 131 ff.

growing near modern Niṣab,[13] which is located approximately 155 air miles northeast of Aden (fig. 2). In the course of his study of the ancient irrigation installations in Wadi Beiḥan, Bowen discovered a series of discolored circles laid out in straight rows on the ancient fields composed of silt deposited by irrigation. After studying the modern flora of the region and the relevant classical sources, Bowen reached the tentative conclusion that

Fig. 2. A myrrh tree, *Balsamodendron Myrrh*, Nees, growing in the mountains southwest of Niṣab (after van der Meulen, *Aden to the Hadhramaut*, pl. 22).

these circles marked the location of groves of ancient myrrh trees.[14] He also saw a tree in the mountains bordering Wadi Beiḥan, which he tentatively identified as myrrh.[15] But although modern sources tell us little about the exact location of the myrrh region, classical authors enable us to define it more precisely. Pliny (XII. xxxv. 69) lists several kinds of myrrh,

13. D. van der Meulen, *Aden to the Hadhramaut* (London, 1947), pl. 22.
14. See R. LeBaron Bowen, Jr., "Irrigation in Ancient Qataban (Beiḥan)", *Archaeological Discoveries in South Arabia* (Baltimore, 1958), pp. 60 f.
15. Bowen, "Ancient Trade Routes in South Arabia," *ibid.*, p. 41.

each of which is named after the region in which it grew: Minaean in ancient Ma'in, Astramitic in Hadhramaut, Gebbanitic in Qataban, Ausaritic in Ausan, Sambracene in southern Tihama, and two other varieties from areas as yet unidentified. All of these areas are located in the western and west-central portion of South Arabia. The author of the *Periplus* tells us (par. 28) that the only South Arabian port which exported myrrh was Muza (modern Mocha), suggesting that the myrrh-producing region was located not far from this town, since products of the hinterland were customarily sent to the nearest port. Claudius Ptolemy in his sixth map of Asia places the myrrh-producing regions (*Smyrnophoros Interior* and *Smyrnophoros Exterior*) to the north and northwest of Arabian Emporium (modern Aden).

The myrrh-producing region of Somaliland is confined to the western and central portion of that country. Specifically it grows in the coastal region between Zeila and Heis, and on the inland plateau as far east as the Nogal Valley.[16] The same distribution is described by Strabo (16.4.14) and the author of the *Periplus*. The *Periplus*, for example, states that myrrh was exported from Avalites, Malao, Mundus, and Mosyllum, but that only small quantities were shipped from Avalites and Mosyllum (pars. 7-10). This suggests that the chief myrrh-producing region of Somaliland was located in the center of the region bounded by these ports. Thus in Somaliland, frankincense was largely confined to the central and eastern portion of the country, while myrrh was restricted to the central and western portion. Modern exploration and classical authors agree that the myrrh and frankincense regions overlap in the center of the country along the coastal plain and the inland plateau.

Land and Sea Trade Routes

Frankincense and myrrh were in great demand in antiquity, because of the many uses to which they were put by the peoples of the Fertile Crescent and the Mediterranean world. To satisfy this demand, the South Arabs developed a well-organized system of distribution. They were aided in this effort by the geographical position of the Arabian Peninsula, which is connected by land with Sinai, Syro-Palestine, and Mesopotamia, and is surrounded by navigable waters on the west, south, and east. Thus by both land and sea, the south Arabs were in contact with the great centers of civilization to the north and west, Mesopotamia, Syro-Palestine, Egypt and classical lands, and by sea only with Africa and India.

It should be noted that at no time was there one single incense route, as most of the explorers of Arabia have assumed.[17] We must reckon in all

16. Drake-Brockman, *op. cit.*, pp. 241-45.
17. Bowen, "Ancient Trade Routes . . . " *op. cit.*, pp. 35-42.

periods with the use of several routes on both land and sea. The importance of these routes probably varied considerably with political and economic conditions in Arabia and Africa. For example, severe losses resulting from piracy on the high seas (e.g., Pliny VI. xxvi. 101; *Periplus* par. 20) might cause a shipper to turn to land caravans to convey his merchandise, or, on the other hand, heavy taxation by tribes through whose territory caravans passed might force a merchant to use seagoing vessels to transport his commodities.

Let us consider some of the more important routes which linked the regions of production with the consumer world. In both Somaliland and Arabia, frankincense and myrrh were transported over a number of short feeder routes from the forests to major ports and caravan centers. In Somaliland, these routes led to the ports on the northern coast, from which frankincense and myrrh were shipped by sea (Strabo 16.4.19; Pliny XII. xxxiii. 66). From the frankincense forests in Dhofar, routes led to Moscha and Syagrus on the south coast (*Periplus* pars. 30, 32). During the winter, part of the frankincense was shipped by native boats and rafts from Moscha and Syagrus to Cana (South Arabic Qana, Modern Bir 'Ali), the principal Hadhrami port on the southern coast; the remainder was loaded on ships bound for Egypt. From Cana, some of the frankincense was transported overland to Shabwa, the capital of the kingdom of Hadhramaut, and some was stored until the following summer when it was carried to India on east-bound ships (see below). Other routes led overland from the collecting stations in the forests of Dhofar to Shabwa.[18]

The myrrh groves in the west central portion of southern Arabia were linked by routes to Eudaemon Arabia (Aden), Ocelis, and Muza (modern Mocha), the principal South Arabian myrrh ports, and to Shabwa and Timna', the capital of the kingdom of Qataban. The principal overland route to the north began at Shabwa and included stops at Timna', Marib, Ma'in, Yathrib (Medina), Dedan (El-'Ola), and Gaza. This journey, according to Pliny, was made in 65 stages (XII. xxxii. 63-64). At the northern end of this route were several branches leading to different destinations. One branch passed through Aelana (Elath) (Strabo 16.4.4), and another went by way of Leuce Come, Petra, and Rhinocolura (El-'Arish) (Strabo 16.4.24; *Periplus* par. 19). Although not specifically mentioned in the literature, one branch must have followed the King's Highway through Trans-Jordan, and another route probably branched off at Teima, enroute to Mesopotamia.

18. For routes in mediaeval times, see Grohmann, *op. cit.*, II, pp. 126 ff., and Freya Stark, *The Southern Gates of Arabia* (New York, 1936), pp. 310 ff. For modern routes, see W. Thesiger, "A New Journey in Southern Arabia," *Geographical Journal*, 108 (1946), p. 139, note 1.

Several lines of evidence point to the existence of an overland route across the middle of the Arabian Peninsula from Wadi Hadhramaut to the Persian Gulf. Strabo (16.4.4) tells us that a journey from Hadhramaut to Gerrha required forty days, and that from Gerrha, frankincense was shipped to Mesopotamia and Palestine. Now the fact that Gerrha was inhabited by Chaldaean exiles from Babylon in the third century B.C. according to Strabo (16.3.3), and probably somewhat earlier, and the fact that the Chaldaean script probably had its origin in southeast Arabia, as shown by Albright,[19] strongly suggest a link between Dhofar, Hadhramaut, and Gerrha, reaching across the Empty Quarter, and tend to support Strabo's statement. The date of the origin of the major route from South Arabia to Syro-Palestine can be determined with some certainty. The journey of the unnamed Queen of Sheba to the court of Solomon, which was presumably made for the purpose of obtaining a favorable agreement covering the distribution of products of Arabia, almost certainly followed the Marib-Yathrib-Dedan route. This event took place about the middle of the tenth century B.C., proving that this route was in use at that early date. Furthermore, since travel across Arabia would have been impossible without the use of the camel, and since the effective domestication of the camel seems to have occurred in the thirteenth or twelfth century B.C.,[20] this route must have come into use between the twelfth and the tenth centuries B.C.

In addition to these land routes, a vast complex of sea routes linked the incense ports of southern Arabia and Somaliland with the east and the west. As early as the eleventh dynasty, at the end of the third millennium B.C., Egyptian boats were sailing the length of the Red Sea to obtain incense and distinctly African products from Punt (Somaliland).[21] On the return voyage from Punt, these vessels sailed to Quseir where cargoes were conveyed overland to Coptos and then transported by boats northward on the Nile. Although this route seems to have been used for centuries, several alternate ports at the north end were used in the second half of the first millennium B.C., according to classical authors. One was Myos Hormos (Strabo 16.4.24), another was Berenice (Pliny VI. xxvi. 102-3), and still another was Arsinoe, from which goods were transported to Alexandria over one of three different land routes (Pliny VI. xxxiii. 166-67). By the first century A.D., Greco-Roman merchant fleets based in Egypt were making annual trips to the ports of Somaliland and East Africa. On these voyages, ships called at ports along the west coast of the Red Sea and the northern

19. See W. F. Albright, "The Chaldaean Inscriptions in Proto-Arabic Script," *BASOR* 128 (1952), pp. 44 f.
20. W. F. Albright, *From the Stone Age to Christianity* (Baltimore, 1946), pp. 107,120; Reinhard Walz *Zeitschrift der deutschen morgenlandischen Gesellschaft*, 101 (1951), pp. 29-51; 104 (1954), pp. 47-50; *Actes du IV^e Congrès International des Sciences Anthropologiques et Ethnologiques, Vienna* 1952, III (1956), pp. 190-204.
21. Grohmann, *op. cit.*, II, pp. 101-04.

coast of Somaliland, and some rounded the horn of Africa, sailing as far south as Azania, which was perhaps in the region of Zanzibar (*Periplus* pars. 2-18). Other vessels, after calling at the Somaliland incense ports, sailed directly from the Market of Spices to India (*Periplus* par. 57). On the return voyage, some ships sailed from India to Dioscorida (Socotra) and the Somali coast (*Periplus* pars. 14, 31). Arab merchantmen also participated in the Somali coast trade, according to the *Periplus* (pars. 7, 27). It is quite likely that in early times, as well as in the Greco-Roman

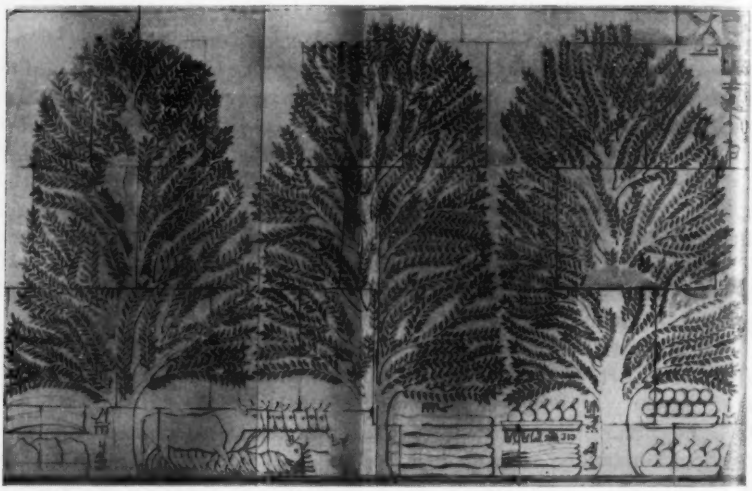

Fig. 3. The myrrh trees of Punt (Somaliland) as shown in the reliefs commemorating Hatshepsut's expedition to that distant land. From the middle colonnade of the south wall of the Temple at Deir el-Baḥari (after Naville, *The Temple of Deir el-Bahari* III, pl. 78).

period, a portion of Somaliland frankincense and myrrh was brought to the South Arabian ports or carried northward and eastward by Arab merchantmen.

A portion of the Greco-Roman fleet seems to have specialized in incense, and these ships visited only the incense ports of Somaliland and Arabia, sailing no farther east than Cana before returning to Egypt (Pliny VI. xxvi. 104). According to the *Periplus* (pars. 6, 24), vessels engaged in this trade sailed from Egyptian ports no later than September.

The greater portion of the Greco-Roman fleet, however, was used in the lucrative Arabia-India trade. These ships sailed from Egypt no later than July and called at the South Arabian myrrh ports, Muza, Ocelis, or Eudaemon Arabia, and then at Cana, the principal Arabian frankincense

port (*Periplus* pars. 24, 27-28; Pliny VI. xxvi. 104). At Cana, this sea route divided into three branches: (1) One branch led to the Persian Gulf, and vessels using this route followed the Arabian shore from Cana eastward. According to the *Periplus*, one of the Persian Gulf ports, Omana, imported frankincense, and along this entire coast ships traded for pearls, the principal commodity of this region (pars. 30, 32-37). (2) Another route led to northwest India, with calls at Barbaricum, which also imported frankincense, and Barygaza. Ships using this route hugged the coast of Arabia for three days after departing from Cana—which took them to about Syagrus (Ras Fartak)—and then headed into the open sea (*Periplus* pars. 39, 41-49, 51). (3) The destination of the third branch was southwest India, where the fleet called at a number of ports, including Muziris. Ships bound for this region set out for the open sea immediately after leaving Cana, heading off wind (*Periplus* pars. 54, 57; Pliny VI. xxvi, 100-101).

The return voyage from India was begun in December or January with the northeast monsoon (Pliny VI. xxvi. 106). If the winds were favorable, ships from both northwest and southwest India sailed directly to Ocelis (*Periplus* par. 25). If their departure from India was delayed, they sailed to Moscha, where they wintered and traded merchandise for frankincense, which they took to Egypt when fair weather returned (*Periplus* par. 32).

Even though none of our sources specifically describes the use of the Somaliland and Arabia-India route in earlier times, it must have been used by Arab and Indian merchant vessels for centuries before the Greco-Roman period.[22] It is the most direct and easiest route linking Arabia and Somaliland with India, because it makes use of the annual alternation of the southwest and northeast monsoon wind systems. Arabs and Indians, who had been engaged in fishing and coastal trading, and had experienced the annual alternation of these wind systems on the high seas for centuries and perhaps millennia, must have discovered quite early the technique of sailing with these winds to reach their desired destination. Although it has been argued that the sea is too rough during the southwest monsoon to be weathered by the type of vessels which the Arabs probably had, a study of insurance rates on Indian coastal vessels[23] and of reports prepared by the India Meteorological Department[24] proves that it is treacherous only along the coast of India and only there for three of the six months of this prevailing wind system. Elsewhere in the Indian Ocean, craft as small as a thirty-foot *jalbut* are able to sail with this wind in comparative safety.[25]

22. For details, see the writer's paper, "Pre-Islamic South Arabian Shipping in the Indian Ocean," to appear in the *Journal of the American Oriental Society* in the near future.
23. K. B. Vaidya, *Sailing Vessel Traffic on the West Coast of India* (Bombay, 1945), p. 136.
24. S. Basu, *Winds, Weather and Currents on the Coasts of India and the Laws of Storms* (Calcutta, 1931), especially pp. 3-10.
25. A. Villiers, *Monsoon Seas* (New York, 1952), pp. 86 f.

Evidence of early trade in the Indian Ocean and Arabian Sea is slowly accumulating. We know, for example, that cinnamon, which is native to Ceylon, was being brought to the ports of South Arabia, Somaliland, and perhaps Ethiopia, as early as the fifteenth century B.C. and perhaps somewhat earlier. Reliefs in the temple of Hatshepsut at Deir el-Baḥari list cinnamon among the commodities which were brought by the ships of her expedition to Punt.[26] The Papyrus Harris, which was prepared by Rameses IV for the tomb of his father Rameses III soon after the latter's death, several times mentions cinnamon among the offerings which Rameses III gave to the Egyptian gods.[27] By the fourth century B.C., cinnamon was being imported into South Arabia, Somaliland, and Ethiopia in such quantities that all classical authors before Pliny (Theophrastus IX. iv. 2; Strabo 16.4.4, 14, 19; Diodorus III. 46. 3) assumed that it was native to these lands. How can we account for the great quantities of cinnamon and other distinctly eastern products in Arab and Somali ports in this early period, long before Greek sailing vessels had begun to participate in the Indian trade? The only possible explanation is that Arab and Indian merchant fleets were bringing them to this area for transshipment to the north and west. In all probability, they used much the same route that was used by Greco-Roman vessels at a later time.

Arab vessels also carried on local trade over a number of coastal routes. The *Periplus* tells us that Leuce Come, a Nabataean town on the eastern shore of the Red Sea, was primarily an Arab merchant town (par. 19); that Dioscorida (Socotra) belonged to the kingdom of Hadhramaut and was settled in part by Arab traders from Muza (pars. 30-31); and that ships from Cana *regularly* called at Moscha, at Sarapis Island (Masira Island), at Omana and the coast of Persia in the Persian Gulf, and at Scythia, Barygaza, and Muziris in India (pars. 27, 32-33, 54, 57). In addition, Arab vessels regularly visited the ports on the north coast of Somaliland as we have seen above, and carried on trade at a number of ports on the east African coast as far south as Rhapta, according to the *Periplus* (pars. 7, 15, 16, 27). These relations with the coast of east Africa are specifically described by the author of the *Periplus* as ancient, and must go back to at least the middle of the first millennium B.C., as we have shown elsewhere.[28]

The picture which emerges from this recital of the land and sea routes mentioned in the classical sources is one of considerable complexity. It could hardly have developed over night, but presupposes a long tradition of commercial relations with the east and the west. The basis of this trade

26. J. H. Breasted, *Ancient Records of Egypt* II (Chicago, 1906), p. 109.
27. *Ibid.*, IV, pp. 132-97 passim.
28. Van Beek, *Journal of the American Oriental Society*, 78:3 (1958), p. 146, note 37.

was the universal demand for frankincense and myrrh, in which the Arabs and their associates held a complete monopoly, and the transfer of goods from east and west.

That Arabs were actively engaged in trade with other lands is proven by several discoveries. (We are not including here the South Arabian finds in Ethiopia; since Ethiopia was a Sabaean colony, the South Arabian objects discovered there belong to a different category of relationship from those from areas not under the political or economic control of the South Arabs). The earliest of these is a large fragment of a South Arabian clay stamp, which was discovered by James L. Kelso at Beitin (biblical Bethel) in 1957.[29] The stamp, which is made of typically South Arabian straw-tempered clay, originally contained three lines of text; unfortunately the first and half of the second lines are broken away. Preserved on the second line are the letters *my* . . . and the lower portion of the strokes of two letters, and on the third line, *fdn*. Jamme reconstructs the text to read: line 1 [. . . *ḥ*], line 2 *my* ⌜*n*'⌝, line 3 *fdn*, which he tentatively translates ". . . Hamiyan, the delegate." Now this stamp is clear evidence of trade between South Arabia and the Northern Kingdom of Israel. More specifically, the fact that Bethel was one of the two temple cities of the Northern Kingdom (I Kings 12:25-33; Amos 7:13), and that frankincense was used in connection with religious rites in Israel (see below) enables us to conclude that the chief commodity of this trade was frankincense. Even though the stamp was found in debris outside the city wall in an undatable context, several lines of evidence indicate that it was brought to Bethel between the late tenth and the fourth quarter of the eighth centuries B. C. These limits are provided by I Kings 12:29, which states that the Bethel temple was built by Jeroboam I, probably not long after 922 B.C., and by I Kings 17:5, which suggests that it was destroyed by the Assyrians before *c.* 722-21 B.C. After the latter date, there was, of course, no need for frankincense at Bethel. Considerations of palaeography, based on a comparative study of certain letters of this stamp with those of a number of graffiti in Wadi Beiḥan and Mukeiras in South Arabia, also suggest a date in this period.

Two other South Arabian inscriptions have been found in areas outside of South Arabia. One appears on a sarcophagus discovered at Gizeh (RÊS 3427), which describes financial obligations of the deceased and mentions trade in aromatics. The second (RÊS 3570), found on the Island of Delos, is a bilingual inscription in the Minaean dialect of South Arabic and in Greek. It dedicates an altar of sacrifice to Wad and the divinities of Ma'in. Both of these inscriptions belong to the third century B. C. These finds

29. G. W. Van Beek, A. Jamme, "An Inscribed South Arabian Clay Stamp from Bethel," *BASOR*, 151 (1958), pp. 9-16.

from Egypt, Palestine, and Delos, ranging in date from about the ninth to the third centuries B.C., bear witness to the geographical extent and time span of South Arabian trade in the first millennium B.C.

Uses of Frankincense and Myrrh

Having alluded in several places to the demand for frankincense and myrrh in antiquity, let us now examine the basis of this demand, namely the uses to which these substances were put by peoples of the Fertile Crescent and the Mediterranean world. Owing to limits of space, we shall describe only the major uses of frankincense and myrrh and give a few examples of each; the fact is that both of these gum-resins were used in so many different ways that a monograph would be required to treat their usage in detail.

Frankincense (Heb. *lebōnāh;* Akkad. *labanatu;*[30] Arab. *lubān;* Greek *libanos, libanotos;* Lat. *tūs*) was chiefly used as incense, i.e., to produce a fragrance when burned, in religious rites of most ancient peoples. This was its major function in ancient Israel, and its use as incense is attested in numerous passages in the Old Testament. It was one of the ingredients of the special blend of incense, which was considered holy to and reserved for Yahweh, and was placed in the Tent of Meeting (Exod. 3:34). It was also placed on meal offerings of first fruits (Lev. 2:15-16), and on the Bread of the Sanctuary, which was set before Yahweh each Sabbath (Lev. 24:7). In the first two of these offerings, the whole quantity of frankincense was consumed by fire on the altar; in the last, it was apparently eaten by Aaron and his sons in the Sanctuary. It continued to be used in offerings as late as the first century A.D., as shown by a number of passages in the *Mishnah* (see, for example, Tractates Zebahim, Menahoth, Shekalim, Yoma, and Sotah). It may have been similarly used by individuals and families in their homes, in view of the fairly large number of small incense burners which have been found in archaeological excavations at several Palestinian sites (fig. 6). Although specific references to the use of frankincense as incense in Akkadian and Egyptian literature are comparatively rare, it is virtually certain that it was employed for this purpose in both regions. There are, for example, numerous references in neo-Assyrian texts to the use of incense offerings in worship; if these offerings were similar to those of their neighbors to the west, we can assume that frankincense was also used. The same is true of Egyptian references to incense. In both regions, incense burners have been found, which may have been used for burning frankincense. The balls of incense found in the tomb of Tutankhamen,

30. I am indebted to Professor Julius Lewy, who called my attention to Ebeling's discussion of this word in "Mittelassyrische Rezepte zur Bereitung von wohlriechenden Salben," *Orientalia*, 17 (1948), p. 137.

which were analyzed and tentatively identified by Lucas as frankincense,[31] were perhaps also meant to be burned as incense in the afterlife. Frankincense was also burned as incense by Greeks and Romans (for example, see respectively Theophrastus IX. iv. 9 and Pliny XII. xxxii. 62). In XII xli. 83, Pliny also tells us that a whole year's production of Arabian frankincense was consumed at the obsequies for Poppaea, the wife of Nero, and that this was commonly done to cover the odor of burning bodies. While this may have been a practical consequence of using frankincense at cremations, the custom was originally intended to propitiate the gods, to whom frankincense was most dear, according to Diodorus (II.49.2).

Frankincense seems to have been little used in the manufacture of cosmetics and perfumes. The Song of Solomon (3:6), which states that it was one of the substances used to scent the couch of Solomon, indicates that it sometimes functioned as a perfume in ancient Israel, and it is possible that it was similarly used elsewhere.

Frankincense was also prominent in Greco-Roman materia medica. Its properties rendered it efficacious for stopping bleeding, healing wounds, promoting suppuration, and cleansing, according to Celsus (V.1-8). Of the many prescriptions in which frankincense was an ingredient, we have selected a few to illustrate the wide variety of application. It was used in antidotes for hemlock and other poisons (Theophrastus IX.xx.1 and Celsus V.23) and in prescriptions for pains in the side (Celsus V.18.6) and chest (Celsus V.4B.8), hemorrhoids (Celsus V.20.5), hemmorhages from the mouth and throat (Celsus IV.11.6), wounds and broken heads (Celsus V.19.11), paralyzed limbs (Celsus III.27.1D), bruises (Celsus V.18.24), ulcerations (Celsus VI.6.13), and abscesses (Celsus V.3). Although it is not commonly mentioned in the literature of other ancient peoples in this connection, it is probable that it was also used in the Fertile Crescent, since medications prescribed by the Greeks and Romans were in many cases similar to those used by the physicians of the ancient Near East.

Myrrh (Heb. *mor;* Akkad. *murru;* Arab. *murru;* Greek *murra, smyrna, stakte;* Lat. *murra, myrrha, stacta*) was also used as incense in antiquity, but to a lesser extent than frankincense, judging from the dearth of specific references in the literature. The inscriptions of Hatshepsut at Deir el-Baḥari refer to the use of myrrh in the temple for its fragrance,[32] which suggests that it was burned as incense. Plutarch tells us that myrrh was used as incense by the Egyptians in classical times.[33] In Assyria, it was burned in a censer, which was placed at the head of a patient's bed, perhaps

31. A. Lucas, *Ancient Egyptian Materials and Industries*, pp. 93-4.
32. Breasted, *op. cit.* II, p. 118.
33. According to Lucas, *op. cit.*, p. 94, note 12, where he cites *Isis and Osiris*, which I have not seen.

to fumigate the bed chamber.[34] The Greeks are also reported to have burned myrrh as incense (Theophrastus, *Concerning Odors* 12).

More important was its use in ancient cosmetics and perfumes. In Israel, flowing myrrh—presumably a neutral oil containing myrrh—was mixed with a number of spices to make a fragrant, holy, anointing oil (Exod. 30:23). On a profane level, it was used to perfume royal garments (Psa. 45:8), beds (Prov. 7:17; Song of Solomon 3:6), and the human body (Song of Solomon 1:13; 5:5). According to Esther 2:12, it was considered to have other beneficial cosmetic effects, since a six-month series of beauty treatments employing oil of myrrh was given candidates for queenship in

Fig. 4. Tears of gum-resin exuding from the tapped branch of a frankincense tree in Dhofar (courtesy of Ray L. Cleveland).

the Persian court. We learn from the Amarna letters that myrrh and oil of myrrh were included among the gifts of Tushratta, the king of Mitanni, to Amenhotep III and perhaps to Akhnaton of Egypt,[35] and, in both instances, these preparations were probably intended for use as perfumes or ointments. Turning to Egypt, the Deir el-Baḥari inscriptions state that Hatshepsut rubbed myrrh on her legs,[36] in order to impart fragrance. Theophrastus (*Concerning Odors* 28) states that "Egyptian" perfume was made of myrrh and cinnamon among other substances, and Pliny (XIII.2.6) tells us that

34. R. Campbell Thompson, *A Dictionary of Assyrian Botany* (London, 1949), p. 340, and references.
35. J. A. Knudtzon, *Die el-Amarna-Tafeln* I (Leipzig, 1915), 22.III.29 and 25.IV.51.
36. Breasted, *op. cit.* II, p. 113.

myrrh was one of the ingredients in Mendesian ointment, a famous preparation which was named after the city of Mendes in the Delta where it was manufactured. The Greeks also used myrrh in making perfumes. It is mentioned in the formula of a renowned perfume known as *Megaleion* (Theophrastus, *Concerning Odors* 17, 29), and Theophrastus lists stacte (myrrh-oil), *Megaleion*, and "Egyptian" among the perfumes which were considered best for women because of ". . . . their strength and substantial character (which) do not easily evaporate and are not easily made to disperse, and a lasting perfume is what women require" (*Concerning Odors* 42). These references, together with the reference from the Gospel of Matthew cited at the beginning of this article, show that myrrh and myrrh products were associated with gracious living—to borrow a current phrase—in ancient times.

Myrrh was also widely used in the practice of medicine in antiquity. There is no unequivocal evidence that myrrh formed part of the materia medica of ancient Palestine, although this can be reasonably assumed in view of its extensive use in medicine elsewhere, especially in Mesopotamia and the Greco-Roman world. It is possible that the mixture of wine and myrrh, which was offered to Jesus just before the Crucifixion (Mark 15:23), was an analgesic or painkiller. In Mesopotamia, it had a number of applications in the practice of medicine.[37] It was used in making poultices for the head, and for blains and chilblains; it was prescribed for ear, eye, and nose ailments; it was mixed with alum for a mouth wash; it was prescribed for strangury; it was used as an anal ointment, presumably for hemorrhoids, and in enemas. Myrrh also figured in a number of remedies used by Greco-Roman physicians, according to Celsus. For example, it was used internally in prescriptions for quartan fever (III.16.2), dropsy (III.21.6), and as an antidote to prevent poisoning (V.23.3). Externally, it was an ingredient in prescriptions for the relief of pain in the side (V.18.7B) and the liver (V.18.3); for relief of inflammation of the ears and earache (VI.7.1-2), and for treating eye diseases (VI.6.I); for hemorrhoids (V.20.5), bladder stones (V.20.6), inflammation of the uvula and genitals (V.20.4); to induce menstruation (V.21.B); for abcesses (V.18.16), and to promote healing (V.2); and in plasters for broken heads (V.19.7).

One of the better known applications of myrrh was in connection with preparing corpses for burial. The Gospel of John (19:39-40) states that Joseph of Arimathaea brought a mixture of myrrh and aloes, which was wrapped with the body of Jesus in linen. In Egypt, myrrh was commonly used in the process of mummification.[38] According to Herodotus, it was one of the substances which were used to fill the eviscerated and cleansed

37. See R. Campbell Thompson's excellent summary, *op. cit.*, pp. 339-40.
38. See Lucas' discussion, *op. cit.*, pp. 230-34, 263-65.

body cavity in the most expensive embalming technique. Diodorus, on the other hand, states that myrrh was rubbed on the eviscerated and cleansed body for the purpose of preserving and perfuming it (I.7). Both uses are considered probable by Lucas, who also states that he found a substance, which is probably myrrh, in mummies of royal and priestly persons, ranging in date from the eighteenth dynasty through the Ptolemaic period.

Thus frankincense and myrrh touched many phases of life in antiquity, with applications in religious rites, in the home, in the area of personal comfort and adornment, in medicine, and in embalming. This brief summary includes by no means all of the known uses of these substances, and, in addition to those that are known, there were undoubtedly many other applications which are still unknown, owing to both the loss of literature and to the failure of ancient man to put in writing full descriptions of his techniques and formulae. Enough is known, however, to establish the importance, indeed the necessity, of these substances in the cultures of the ancient Near East and Mediterranean world. The many uses of frankincense and myrrh created a universal clamor and demand for these substances, which the South Arabian producers and distributors sought to supply.

Economic Effects of the Incense Trade

This demand for frankincense and myrrh, together with the limited supply of these commodities, resulting from the restrictions of production and the difficulties of transportation imposed by nature and the prevailing level of technology, made incense very costly in the ancient world. Our most complete information on the value of gum-resins is obtained from classical authors. Pliny tells us that in order to prevent theft "At Alexandria . . . where the frankincense is worked up for sale, good heavens! no vigilance is sufficient to guard the factories. A seal is put upon the workmen's aprons, they have to wear a mask or a net with a close mesh on their heads, and before they are allowed to leave the premises they have to take off all their clothes . . . " (XII.xxxii.59). He also states that before a frankincense caravan has reached the Mediterranean, the expenses per camel amounted to 688 denarii, owing largely to taxation en route (XII.xxxii.65). Whether this figure includes the original purchase price of the gum-resin in Dhofar, we are unfortunately not told. If a camel could carry 300-400 pounds of frankincense—today caravan camels in Wadi Beiḥan carry about this amount of salt[39]—the transportation of each pound of incense cost from 1.72 to 2.29 denarii. When we add to this the caravaneer's profit, the overhead and profit of the factory where it was processed, and of those who

39. Bowen, "Ancient Trade Routes in South Arabia," *op. cit.*, p. 35.

transported and sold the final product, it is no wonder that the best frankincense sold for 6 denarii, the second best for 5 denarii, and third quality for 3 denarii per pound (Pliny XII.xxxii.65).

But what do these figures mean in terms of the average Roman's wages and cost of living? And is it possible to translate these costs in terms of our wages and cost of living in 1960? Such estimates are, of course, difficult to make, owing to our incomplete data on the economy of the ancient world, and comparisons between ancient and modern price structures are much more uncertain. Of the data available, perhaps the most reliable are those dealing with the relationship of prices to cost of living, although these varied somewhat from region to region and from time to time. Thus, it is possible to compare the cost of a commodity with the minimum, annual, urban cost of living, and to express this comparison as a percentage. Similarly we can estimate the minimum cost of living in our time, and calculate the approximate value of an ancient product today by applying the same percentage figure. Such comparisons cannot be pressed closely, and are of value only for making the roughest estimates of costs; they do provide a basis for a better understanding of ancient prices, if used with great caution. We know that in the second century A.D., 100-140 imperial denarii per year were required for the basic necessities of life in Roman Syro-Palestine.[40] If we use the mean figure, 120 denarii, the above-mentioned prices of a pound of frankincense would represent 2.5-5.0% of the amount required to maintain a minimum standard of living for a year. This percentage is rather high, and establishes the relative costliness of frankincense in the Roman Empire in that period. If we assume that frankincense were equally valued in our time, and that the cost of its production and distribution were the same today, we can roughly compute the value of a pound of frankincense in our economy by applying the same figure, 2.5-5.0%, to our minimum urban cost of living. As of March, 1960, the average factory worker in the United States was earning about $4715.00 per year,[41] of which perhaps $3500.00 was spent on basic necessities (this includes food, shelter, clothing, and a small amount for miscellaneous expenses, but excludes transportation, recreation, etc.). Using $3500.00 as an average figure and multiplying it by the above percentages, we find that a pound of frankincense would cost between $87.50 and $175.00 today depending on its quality. In other words, under similar circumstances, a factory worker would have to work one week to purchase a pound of poor quality frankincense, or two weeks to buy a pound of the best quality. Frankincense is, of course, not worth a fraction of this sum now, but this figure gives us a

40. For details, see F. M. Heichelheim, "Roman Syria," in Tenny Frank (ed.), *An Economic Survey of Ancient Rome* IV (Baltimore, 1938), pp. 178-81.
41. *U. S. Department of Labor News* 4078, (April 25, 1960).

better appreciation of its value to the Romans of the first and second centuries A.D.

The widespread demand for costly incense, the monopoly of centers of incense production, and the control of distribution systems brought great wealth to the South Arabian states, according to classical sources. In the first century A.D., Pliny described the South Arabs as the wealthiest race in the world (VI.xxxii.162). Elsewhere (XII.xli.84; VI.xxvi.101), he conservatively estimated that of the 100 million sesterces which were expended by the Roman Empire for goods from the East—that is Arabia, India, and China—approximately half of this sum was spent for Arabian merchandise alone. While a portion of these funds was used for the purchase of pearls at Persian Gulf ports, the bulk was used to buy incense in South Arabia. Diodorus picturesquely describes the prosperity of the Sabaeans as follows: "This tribe (the Sabaeans) surpasses not only the neighbouring Arabs but also all other men in wealth and in their several extravagancies besides. For in the exchange and sale of their wares they, of all men who carry on trade for the sake of the silver they receive in exchange, obtain the highest price in return for things of the smallest weight. Consequently, since they have never for ages suffered the ravages of war because of their secluded position, and since an abundance of both gold and silver abounds in the country, . . . they have embossed goblets of every description, made of silver and gold, couches and tripods with silver feet, and every other furnishing of incredible costliness, and halls encircled by large columns, some of them gilded, and others having silver figures on the capitals. Their ceilings and doors they have partitioned by means of panels and coffers made of gold, set with precious stones and placed close together, and have thus made the structure of their houses in every part marvellous for its costliness; for some parts they have constructed of silver and gold, others of ivory and the most showy precious stones or of whatever else men esteem most highly. For the fact is that these people have enjoyed their felicity unshaken since ages past because they have been entire strangers to those whose own covetousness leads them to feel that another man's wealth is their own godsend" (III.47.5-8). We are also told by Strabo that Augustus' purpose in sending Aelius Gallus on the Arabian campaign in 24 B.C. was to win wealthy friends or to conquer wealthy enemies (16.4.22). Although these descriptions of the wealth of South Arabia date from the first century B.C. and the first century A.D., we can reasonably assume that the level of prosperity was much the same in earlier times, that is throughout most of the first millennium B.C. The great demand for aromatics, the visit of the Queen of Sheba to Solomon, the Sabaean colonization of Ethiopia, trade with the coast of East Africa, and the role of South Arabian ports as intermediaries

in the transshipment of eastern and western goods indicate a prosperous economy in South Arabia during this period.

This flow of wealth into the country made possible the importation of a wide range of objects d'art, minor objects, and techniques, as well as the construction of large splendid cities (on the latter, see below). Here we will briefly mention a few of the imports, local imitations of foreign works of art, and techniques which have been brought to light by recent archaeological excavations. The earliest are two stelae, which were discovered by the expeditions of the American Foundation for the Study of Man at Hajar Bin Ḥumeid, a village site located about nine miles south of Timna', and at Ḥaid Bin 'Aqil, the Timna' Cemetery. These stelae—in alabaster—are the work of local craftsmen, who imitated northern prototypes of the first half of the first millennium B.C.; the former goes back to a Syro-Phoenician prototype, dating between the twelfth and the middle of the eighth centuries B.C.,[42] and the latter is an Arabian adaptation of a combination of Syro-Hittite motifs of about the sixth century B.C.[43] We also have evidence of the influence of Syro-Palestinian and Mesopotamian ceramic forms and finishing techniques on several types of South Arabian pottery; this borrowing goes back to the early centuries of the first millennium B.C., and in some instances perhaps slightly earlier.[44] In the Marib excavations, a bronze statue of a youth wearing a lion skin was discovered, which reflects a syncretism of chiefly Syro-Phoenician and Egyptian features, ranging in date from the end of the second millennium to about the end of the seventh century B.C.[45] Marginally drafted, pecked masonry, which was used in major structures at a number of sites in South Arabia, has been shown to have been borrowed probably from Assyria in the eighth century B.C.[46]

In Hellenistic times, a number of bronze statues were imported—or cast locally from imported molds—from a northern center, such as Alexandria. The most important of these is the pair of Hellenistic bronze lions with infant riders, which were discovered near the South Gate of Timna', and have been studied by Dr. Berta Segall.[47] To this period also belong fragments of an alabaster statuette of Isis,[48] which closely imitates a Greek prototype. A number of pieces of imported pottery, including fragments of a net lekythos, glazed ring-handled skyphoi, Rhodian type amphorae, and especially fragments of Italian and Near Eastern Sigillata and ACO ware

42. Berta Segall, "Sculpture from Arabia Felix: The Earliest Phase," *Ars Orientalis* II (1957), pp. 38-41.
43. Berta Segall, "Problems of Copy and Adaptation in the Second Quarter of the First Millennium, B. C.," *American Journal of Archaeology*, 60 (1956), pp. 169-70.
44. See the writer's forthcoming volume entitled *Hajar Bin Ḥumeid*.
45. Segall, "Problems of Copy and Adaptation . . ." *op. cit.*, pp. 165-70.
46. G. W. Van Beek, "Marginally Drafted, Pecked Masonry," Appendix V in Bowen and Albright, *Archaeological Discoveries in South Arabia*, pp. 287-96.
47. "The Lion-Riders from Timna'," in Bowen and Albright, *ibid.*, pp. 155-64.
48. Berta Segall, "Sculpture from Arabia Felix: The Hellenistic Period," *American Journal of Archaeology*, 59 (1955), pp. 213-14.

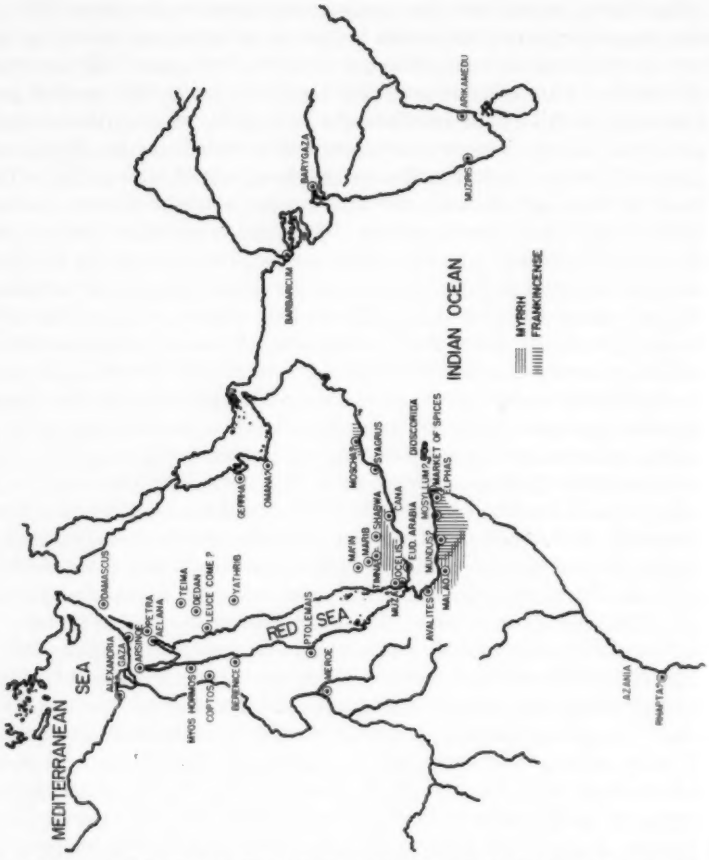

Fig. 5. Sketch map of Arabia and adjacent lands, showing the probable locations of frankincense and myrrh forests, ancient ports, and caravan cities.

have been found at Timna', at Hajar Bin Ḥumeid in Wadi Beiḥan,[49] and more recently at Khor Rori in Dhofar.[50] South Arabian coinage was also

49. Howard Comfort, "Imported Pottery and Glass from Timna'," in Bowen and Albright, *Archaeological Discoveries in South Arabia*, pp. 199-207.
50. Mentioned in a letter dated February 29, 1960 from Dr. Ray Cleveland, to whom I wish to express gratitude for permission to use this material.

locally adapted from well-known coin types of the Greco-Roman world. As yet we have only one import from the east, a small bronze statuette of a dancing girl of Indian origin and dating from about the second century A.D. This statuette from Khor Rori is our first proof of trade between South Arabia and India;[51] it gives us cause to hope that other evidence of trade from the east will be found in future excavations in southern Arabia.

These objects attest a surplus of wealth in ancient South Arabia that made it possible for the states to import works of art of considerable value from the great civilizations of the west, north, and east. While they do not necessarily support Pliny's statement that the South Arabs were the wealthiest people in the world, they strikingly confirm the view generally held by classical authors that South Arabia was a truly prosperous land.

South Arabian Culture in the Light of Incense Trade

The description of South Arabian production and distribution of frankincense and myrrh in the preceding pages presents some, but by no means all, of the complex problems of this aspect of South Arabian economy. We are in the dark, for example, regarding the measures taken by the South Arabian states to guard their frankincense and myrrh forests from people of other lands, who coveted and sought to plunder them. It is clear from the classical sources that until the beginning of the Christian Era and for some decades afterward, there was considerable confusion about the nature of the frankincense and myrrh trees and the exact location of the forests (see, for example, Theophrastus IX. iv. 5, Diodorus III. 46.1-3, and Strabo 16.4.19), a confusion which seems to have been deliberately fostered by South Arabian traders and diplomats, if we can believe the words of Pliny (XII.xxxi). We have also said nothing about the organization of the caravans and merchant fleets which distributed these commodities to the various markets. We do not know what arrangements were made among the various South Arabian states to assure the flow of frankincense and myrrh from the groves in Arabia and possibly Somaliland to ports and caravan collecting points. It is certain that some arrangements were made, owing to fact that no single state controlled both centers of production and distribution for very long, if at all. This is also true of details of the negotiations for treaties with other tribes and states along the routes of transport, whose unfriendly actions, in the form of piracy on the seas or the robbery of caravans, could jeopardize this trade, and in turn seriously handicap, if not destroy, the economic basis of the South Arabian states. We know that overland caravans were permitted to pass through tribal and state territories by paying taxes en route about the beginning of the Christian Era and

51. F. P. Albright, "From South Arabia," *Archaeology*, 7 (1954), p. 254.

presumably earlier, but we do not know how these agreements were negotiated or the details of their terms. In spite of these lacunae in our data, there can be no doubt that the production and distribution of frankincense and myrrh was a big business in the South Arabian states, much as the production and distribution of petroleum products is a major industry in our time.

Success in the production and distribution of frankincense and myrrh, as in any comparable industry, was only possible in a highly organized society. Negotiations with other tribes and the maintenance of security presupposed a strong and relatively stable government; the production of incense and the development of trade routes, ports, and port facilities, which were sufficiently large to serve as major points of transshipment, required a sound economic and political structure. Thus the fact that the South Arabs were successful in the incense trade is excellent evidence of the high level of social, economic, and political organization achieved by the various states.

That the culture of South Arabia was highly developed is further supported by the material remains which have been brought to light by the few explorers of southern Arabia during the last 150 years, and by the small group of amateur and professional archaeologists, who have excavated in this region during the past 30 years or so. The remains of efficient irrigation systems in most, and probably all, of the valleys north of the watershed of the east-west range of mountains paralleling the southern coast point to planned community effort. Bowen has successfully explained the principles of the irrigation system in Wadi Beiḥan, the center of the ancient kingdom of Qataban, and of the system in Wadi 'Amd, which was investigated by Elinor Gardner and Gertrude Caton Thompson in 1938.[52] Briefly, the system utilized the *seil* or flash-flood, which suddenly fills the wadies during the rains of the spring and autumn. In antiquity, the silt-laden water rushing down the sides of the mountains was caught by a large primary channel which ran along the base of the mountains. As the water flowed down this channel, it was diverted by stone-built sluices into secondary channels, and from the secondary channels it flowed through a network of tertiary channels to the fields, on which it deposited its load of silt. In other valleys large dams were constructed, such as the famous dam at Marib, for the purpose not of storing water but of diverting it into channels, which in turn distributed it over the fields. The construction and maintenance of the many irrigation installations in this region required community action, and effective community action at this level was only possible under strong government.

52. "Irrigation in Ancient Qataban (Beiḥan)," *Archaeological Discoveries in South Arabia*, pp. 43-88.

Although archaeological investigation of the area is still in its infancy, we know from several excavations that the South Arabian cities were equal in size and grandeur to those of the Fertile Crescent.[53] The mound of Timna', for example, has a surface area of approximately 52 acres, which is about four times as large as that of Megiddo. The larger cities were well planned and well built. Some of the buildings were constructed of blocks, the cutting and dressing of which are equal to the finest masonry in Egypt and Palestine in any period, and many structures were lavishly decorated with plaster and recessed panels of marble and limestone. Locally cast bronzes, including tools, utensils, and sculpture, attest the high level of technology and craftsmanship. A number of temples, the best-known of which is Awwam (Maḥram Bilqis, the precincts of Sheba) at Marib, which rivals in magnificence the great temples of the north in Mesopotamia, Syro-Palestine, and Egypt, are evidence of a well-developed and highly organized cult. Taken together, these few examples indicate that the social, political, and economic organization of the ancient states of South Arabia was quite complex and advanced.

This means, of course, that we can no longer think of the Minaeans, Sabaeans, Qatabanians, and Hadhramis as nomadic tribes, drifting from oasis to oasis in the Arabian Peninsula during the first millennium B.C. As early as the middle of the tenth century, Saba (biblical Sheba) was sufficiently well organized and powerful that its queen and a richly laden caravan could safely journey to Palestine, nearly 1500 miles to the north, and that a century or two later, or perhaps about the same time, it could establish colonies in Ethiopia. The archaeological evidence from Wadi Beihan proves that the South Arabs had already achieved a developed sedentary culture in this period and even a few centuries earlier, since the first of a series of towns at Hajar Bin Ḥumeid was built about 1000 B.C. *on* silt which had been deposited by an earlier irrigation system.[54] Although nothing is known of the cultures of Hadhramaut and of the region which later became the center of the kingdom of Ma'in in the first half of the first millennium B.C., we are probably justified in assuming that these territories also enjoyed comparably high cultures. It is therefore certain that if the ancient South Arabs were ever nomadic, the period of their nomadism goes back to about the middle of the second millennium B.C., and possibly even earlier. Perhaps further excavation in southern Arabia will bring to light material that will enable us to trace the development of sedentary occupation and patterns of settlement in this region.

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53. Pending completion of the final publications, see F. P. Albright, "Excavations at Marib in Yemen," *Archaeological Discoveries in South Arabia*, pp. 215-86; Wendell Phillips, *Qataban and Sheba* (New York 1955); and G. W. Van Beek, "Recovering the Ancient Civilization of Arabia," *BA*, 15 (1952), pp. 2-18.
54. Bowen, "Irrigation in Ancient Qataban," *op. cit.*, p. 67.

As yet we do not have sufficient data to write a reasonably complete political history of any one of the South Arabian states, and the farther back we go beyond about 500 B.C., the more obscure historical details become.[55] Annalistic and historical texts in South Arabic are few, and the states are seldom mentioned in the historical documents of the great nations of the north, owing to their peripheral location. Notwithstanding our lack of data at this time, it is reasonable to assume that frankincense and myrrh played an important role in shaping the course of the political history of

Fig. 6. A small incense burner of limestone from the Timna' Cemetery (courtesy of the American Foundation for the Study of Man).

South Arabia. The fact that the frankincense and myrrh forests were separated by several hundred miles of difficult terrain, and that there were a great number of sea and land routes, over which the gum-resins were transported, meant that it was extremely difficult—though not impossible—

55. See further, Van Beek, "Frankincense and Myrrh in Ancient South Arabia," *Journal of the American Oriental Society* 78, pp. 149ff.; J. Ryckmans, *L'institution monarchique en Arabie méridionale avant l'Islam* (Louvain, 1951), pp. 134 ff.

for any one state to control both the sources of production and the means of distribution. Thus Ma'in (centered in the Jauf, in northern Yemen), Saba (with its capital at Marib, and occupying much of central Yemen), Qataban (located in the Western Aden Protectorate, and sharing a common border with Saba), and Ausan (situated in the mountains between Qataban and Aden) were in a position to dominate the myrrh-producing region of Arabia and Somaliland, the ports in the southwest corner of Arabia, and the major overland route to the north and west. On the other hand, Hadhramaut (centered in the Eastern Aden Protectorate, with its capital at Shabwa) was favorably located to control the frankincense forests of Dhofar, the ports from Cana eastward, and the overland route to the Persian Gulf. In this situation, these states must have striven constantly with one another for control of the incense areas and the routes of distribution. It is therefore probable that frankincense and myrrh, with their promise of wealth and economic advantage, greatly affected the political history of South Arabia, and in a large part determined the rise and fall of the various South Arabian states.

This, then, is a brief and incomplete summary of the importance of frankincense and myrrh in antiquity. There is much that we do not know, and much of what we do know, we know only in part. While we cannot as yet restore the whole picture of the role of these substances in antiquity, enough has been assembled to show that they touched many areas of ancient life and in part shaped the destiny of ancient Arabia and its neighbors.

Ancient Biblical Traditions and Modern Archaeological Discoveries [1]

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Qin'at sôfrîm tarbeh ḥokmah.

In the years 1935-39, when W. F. Albright[1a] challenged the results of A. Alt's and M. Noth's investigations dealing with the sources of Israelite pre-history and the newly published archaeological finds in the field, a discussion was started which still continues, as the readers of *The Biblical Archaeologist* well know.

1. Here is a short bibliography of important works cited in abbreviated form in the footnotes of this review article. Albrecht Alt: "Die Landnahme der Israeliten in Palästina" (1925), reprinted in *Kleine Schriften* I (1953), pp. 89-125; "Josua" (1936), reprinted *ibid.*, pp. 176-192; "Erwägungen über die Landnahme der Israeliten in Palästina" (1939), reprinted *ibid.*, pp. 126-175. Martin Noth: *Josua* (1938, 2nd

The subject of this discussion may be summarized in one great question, with all the dangers of oversimplification which such a procedure involves: What is the relation between Israel's early traditions (as they were collected and handed down by the Yahwist, Elohist and Deuteronomistic sources) and the wealth of archaeological data discovered during the last forty years, which discloses a great quantity of information hitherto unknown about the world in which Israel and her ancestors lived?

1. Albrecht Alt and Martin Noth. While Anglo-Saxon scholars have done the greater part of the excavation in the field, German scholars have carried out a gigantic work of classification and interpretation of the available material, often on quite different lines from those of their overseas colleagues. At the head of the group stands Alt, followed by his younger colleague, Noth.[2] In their treatment of ancient Israelite sources, they go far beyond the classical positions of literary criticism, although maintaining its soundest premises and methods.[3] I shall try to summarize a few points which are relevant to our subject, again apologizing for oversimplifications.[4]

Israel's history only begins with the constitution of the Twelve-tribe League (Amphictyony) on Palestinian soil. Each tribe brought with it into the Amphictyony its own traditions about its ancestors and life before and after the conquest of its new territory. All this material was eventually blended into the sources, and then into the Pentateuch and the Deuteronomistic history,[5] according to a chronological succession already established by the Confessions of Faith,[6] becoming integrated with many other elements along the way. What value can such material have as sources for the historian? Alt and Noth[7] have not denied the possibility, or even the probability, that actual historical events lie behind those traditions. Nevertheless, it is clear that most of them were not intended by their anonymous

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ed., 1953); *Überlieferungsgeschichtliche Studien* (1943, 2nd ed., 1958); *Überlieferungsgeschichte des Pentateuchs* (1948); *Die Welt des Alten Testaments* (1940, 3rd ed., 1956); *Geschichte Israels* (1950, 2nd ed., 1954; English translation The History of Israel, 1958); "Hat die Bibel doch Recht?" in *Festschrift G. Dehn* (1957), pp. 7ff.; "Der Beitrag der Archäologie zur Geschichte Israels," in the volume of the Third Congress for the Study of the Old Testament, Oxford, 1959. Supplement to *Vetus Testamentum*, vii., pp. 262-282. John Bright: "Joshua" in *The Interpreter's Bible* II (1953); *Early Israel in Recent Historical Writing* (*Studies in Biblical Theology*, no. 19, 1956); *A History of Israel* (1959). G. Ernest Wright: *The Westminster Historical Atlas to the Bible* (1945), 2nd ed., 1956) (with F. V. Filson); *Biblical Archaeology* (1957); "Archaeology and Old Testament Studies," *Journal of Biblical Literature* 77 (1958), pp. 39-51. For further reading, note should be taken of Y. Kaufmann's *The Biblical Account of the Conquest of Palestine* (1953), which, while it does not deal with archaeology, is an important discussion of problems pertinent to this study of method. The author is greatly indebted to G. E. Wright and M. Noth for sending him reprints of important articles.

1a. W. F. Albright in various articles in *BASOR* between 1935 and 1939. See especially "The Israelite Conquest in the Light of Archaeology," *BASOR* 74 (1939), pp. 11-22.

2. See Albright, "Albrecht Alt," *Journal of Biblical Literature* 75 (1956), pp. 169ff., for a biography. Noth and his colleagues, however, resent being called "the Alt school"; from Alt many a person has learned, but he never intended to found a school. I suggest this designation be dropped, as it is irrelevant to the subject.

3. Bright, *Early Israel* . . . , pp. 79ff.

4. For more details, the reader should consult the works listed in the appended bibliography.

5. The latter first described by Noth in *Überlieferungsgeschichtliche Studien*, and now widely accepted.

6. See G. von Rad, *Das Formgeschichtliche Problem des Hexateuch* (1938), now reprinted in his *Gesammelte Studien* (1958), pp. 9-86, and Noth, *UgPent.*, pp. 7-44 and 48ff.

7. *E.g.* Alt, "Die Herkunft der Hyksos in neuer Sicht," (1954), reprinted in *Kleine Schriften* III (1959), pp. 73-98, esp. pp. 86f., or Noth, "Hat die Bibel . . . ", pp. 16ff., and "Der Beitrag . . . ", pp. 269ff.

authors to be used simply as sources for the historian. They served varying purposes and anyone who wishes to use them as history is confronted with a problem complicated even more by the work done on them by those who made the collections.

Noth,[8] for example, shows himself quite ready now to accept without many reservations, the relation of the Patriarchs to the texts of Mari[9] as far as the names are concerned, and to those of Nuzu[10] in the matter of customs. These connections "are really present and clear, and of such concrete nature, that one will have to bring them back to a historical connection," and, further on, "it seems quite certain to me that the beginnings of Israel are rooted in historical presuppositions, which are proved by archaeological discoveries to be located in the middle of the second millennium." But Noth emphatically denies that more than this can be said on the ground of external evidence. Further, between the texts of Mari and those of Nuzu there is a gap of several centuries (the problem is greater if we accept Nelson Glueck's[11] dating of Abraham *ca.* 21st-20th century), which can hardly be accounted for by three or at most four generations of Patriarchs; nor do we know from whence the Patriarchs took their names and customs, since Northwest Semites were widely spread. Therefore, only one conclusion is possible for Noth: "Only little light falls from external evidence, especially on the Patriarchs."[12]

Regarding the Conquest, evidence, both Biblical and external, is much more extensive, but so are the problems involved. Noth recognizes the wealth of archaeological data[13] which shows destructions on a great scale during the 13th and 12th centuries;[14] these *can*, of course, be related to the Israelite conquest,[15] but there is no need to do so, because Josh. 1-12 exhibits mostly aetiological narratives, whose connections with the Conquest are more accidental than original, and whose historical value is therefore insignificant. It is much more likely that the "Conquest" was, for a long time, nothing but pacific penetration and settling down of seminomadic groups in the wastelands of central and southern Palestine, which only at its final stage gave rise to conflicts.[16] In any event, the period was a very disturbed one,[17] and many people, among them Israel, or, better, Israel's

8. Noth, "Hat die Bibel . . . ", pp. 16ff., and "Der Beitrag . . . ", pp. 269ff.
9. G. E. Mendenhall, "Mari," *BA* 11 (1948), pp. 1-19.
10. C. H. Gordon, "Biblical Customs and the Nuzu Tablets," *BA* 3 (1940), pp. 1-12.
11. N. Glueck, *The Other Side of the Jordan* (1940), pp. 68ff., and "The Age of Abraham in the Negeb," *BA* 18 (1955), pp. 2-9; but compare Noth, "Der Beitrag . . . ", pp. 265ff.
12. Noth, *ibid.*, p. 270.
13. Noth, "Grundsätzliches zur geschichtlichen Deutung archäologischer Befunde auf dem Boden Palästinas," *Palästinajahrbuch* 34 (1938), pp. 7-22. This is his fundamental treatment of "the historical interpretation of archaeological discoveries." Those who, like the present writer, have no access to it, are referred to Noth's *History*, pp. 47ff., and to *Die Welt . . .*, paragraph 17, where most of the subjects are treated (so Noth in a private letter dated Dec. 30, 1959).
14. G. E. Wright, *Atlas*, pp. 39ff., *Biblical Archaeology*, pp. 69ff., *JBL* 77, pp. 39ff.
15. Noth seems more skeptical in "Hat die Bible . . . ", pp. 11ff.
16. Alt, "Die Landnahme . . . ", pp. 121ff., "Erwägungen . . . ", pp. 128ff., 155ff.; Noth, "Hat die Bibel . . . ", p. 11, *History*, pp. 68ff.
17. Wright, *JBL* 77, pp. 47ff.

ancestors, were moving about.[18] How can one assume, therefore, that a Biblical account, dealing with the Conquest, is *proved*, simply because a locality mentioned therein (and sometimes not even mentioned) was destroyed about that time? First, one will have to check the account as to its internal reliability! Alt had put this down before World War II in these classic words: "Not every destruction which happened to a Canaanite place in the time of the Israelite conquest needs to be the result of the conquest, not every conquest the work of Israelites."[19]

This principle means that each local conquest story differs from the others, so that a separate, individual treatment of each one is required.[20] For instance, the results of excavations at Jericho and Ai[20a] stand quite in contrast with the Old Testament traditions. Another problem is raised by Bethel (here, however, Noth's argumentation does not seem so sound) and by the towns in the South listed in Josh. 10, which were most probably destroyed by Israel, although we lack reliable literary evidence.[21] Finally the case of Hazor, where archaeology and Bible traditions seem to agree, is so far unique.

One ought, therefore, to be very careful in saying that Alt and Noth refuse to make use of archaeological data.[22] It would be more exact to say that they refuse to accept certain results and connections as certain when they still regard them as problematic, improbable, or even nonexistent. They present this view with great skill and wealth of arguments, so that something more than a mere denial is demanded. Here is how Noth describes his standpoint: "It is a scientific method . . . which, convincing or not, is in any case scientifically founded"[23], so that the results are something more than a matter of opinion or taste. The adjective "nihilistic" has been much used lately since Albright wrote about a "nihilistic" attitude of Noth and Alt towards the early history of Israel.[24] But one has the right to wonder about the pertinence of such a term.[25] Historical investigation can only use or misuse the evidence. In the first case, the results, although negative, will be sound; in the latter they are not. One would not accuse of "nihilism" the Florentine humanist L. Valla (1407-57) for having proved that the ancient belief in the "Donation of Constantine" was based upon a forgery! But, if this must be said, what shall we say about the sometimes

18. Noth, "Hat die Bibel . . . ", p. 12.
19. Alt, "Erwägungen . . . ," p. 156.
20. Noth, "Der Beitrag . . . ," pp. 272ff., *cf.* "Hat die Bibel . . . ," pp. 11ff.
20a. To these must now be added Gibeon; *cf.* J. B. Pritchard, "Gibeon's History in the Light of Excavations," Supplement to *Vetus Testamentum*, vii, pp. 1-12.
21. Noth is more skeptical in "Hat die Bibel . . . ," pp. 11ff.
22. Bright, *Early Israel . . .*, p. 87, and *History*, p. 120; Wright, *JBL* 77, p. 48; and see Noth's complaint in "Der Beitrag . . . ," p. 272, note 2.
23. Noth, *ibid.*, p. 263, note 1, *cf.* Bright, *Early Israel . . .*, p. 82.
24. Albright, *BASOR* 74 (1939), p. 12; Bright, *Early Israel . . . passim*; Wright, *loc. cit.*
25. Noth rejects it because of its common use as a political and ideological slogan; "Der Beitrag . . . ," p. 263, note 2.

very strong polemical attitude and the rather nasty reviews of the "archaeological histories" appearing in Germany[26]?

2. *John Bright* has met the challenge of Alt's and Noth's writings on their own field by examining Hebrew traditions and their links to archaeological discoveries (in his *Early Israel in Recent Historical Writing* and especially in his new *A History of Israel* to which this paper is dedicated). His detailed work in this area enables him to say more on the subject than many others. Bright accepts the basic soundness of Alt's and Noth's approach, firmly rooted as it is in the best of historical criticism but without its notorious exaggerations. Moreoever, he is ready to concede that the ancient Biblical traditions are not historical documents, a fact which every historian dealing with them will have to remember. He does not, however, discount their *intrinsic historicity*.[27] Bright has examined Alt's and Noth's thesis in a very quick manner; while doing this, he introduces a new and very interesting category, the "*balance of probability*".[28] Granting that there is "no 'proof', if by 'proof' is meant irrefragable evidence that the Bible story happened 'just so' ", where does the balance of probability lie? Applying this method, it is clear to him that archaeological evidence, although it does not perhaps prove anything directly, still inclines the balance towards the Biblical account. The novelty of this system consists in the fact that Bright has been the first one to state and to use it explicitly; Noth has made implicit use of it, at least in one important case,[29] when he affirms that Judah, Ephraim and perhaps also Benjamin and Naphtali received their names from their Palestinian territories. This may seem very probable; still, a historical proof (such as, *e.g.*, finding the names of these territories in documents preceding the Israelite conquest) is lacking. We shall not discuss here the legitimacy of Bright's new approach. It will have to be tested also outside of the Biblical field, although it seems very probable to me.

How does this apply in the reconstruction of the early history of Israel? Bright is fully aware of the difficulties involved in writing history without reliable contemporary records.[30] Nevertheless, the background of Patriarchal migrations shows the remarkable fitting of Israel's ancestors into the world of the first half of the second millennium in Mesopotamia and in Palestine, and, although nothing can be said about the individuals in and of themselves (p. 75; *cf.* p. 83), the accounts ought to be considered authentic. This is, if I understand Bright correctly, where the balance of proba-

26. K. Elliger, Reviews of L. H. Grollenberg's *Atlas of the Bible* and Wright's *Biblical Archaeology* in their German translations, in *Theologische Literaturzeitung* 83 (1958), cols. 743ff., and 84 (1959), cols. 94ff.
27. Bright, *Early Israel* . . . , pp. 83f.
28. *Ibid.*, p. 87. In the light of this new concept, I should like to rethink my review of Wright's *Atlas* in *Theologische Zeitschrift* 15 (1959), pp. 299-301.
29. Noth, *History*, pp. 44ff., *Die Welt* . . . , pp. 48f.; *cf.* Bright, *Early Israel* . . . , pp. 38ff.
30. Bright, *History*, p. 61. This volume is cited by page numbers in the following paragraphs.

bility lies. But, even for him, nothing more than that is claimed! Are he and Noth, on this issue, nearer each other than one might *prima facie* believe? To decide this Bright will have to turn to the sources again and examine them in detail, as his elder colleague has done so many times.

We shall now turn to the conquest of Palestine, since external evidence for the Exodus is lacking (p. 67; *cf.* p. 74). In the conquest, Bright (pp. 111ff.) considers the external evidence of such weight that "the historicity of such a conquest ought no longer to be denied." Not that there are no problems, *e.g.*, the contradictory account of Josh. 1-12 and Judg. 1, the former presenting the conquest as something "sudden, bloody and complete", the latter considering it "a long process, accomplished by the efforts of individual clans" (pp. 117ff.). But, as Wright has shown,[31] they should not be turned against each other with preference to the second; archaeological evidence points to a major onslaught in the 13th century, followed by small, local fights. The external evidence is clear for Hazor and for a number of towns in southern Palestine; it fails, however, for Jericho and Ai.[32] Here, as we can see, lies the major difference with Alt and Noth.

Unfortunately, we cannot go further into Bright's volume, which fills the strongly sensed need for a complete manual for the scholar and the student alike. But one will enjoy it doubly if one reads it together with Noth's *History;* the followers of the latter would do well to read the two volumes side by side also.

Epilogue. At the beginning of this paper I quoted the old rabbinic saying: "Jealousy of scholars increases wisdom." These are not idle words. The one who looks at the positions adopted by Noth leading up to 1959[33] will see a development from a certain skepticism to a rather positive attitude toward traditional tales and persons. On the other hand, looking at Bright between 1956 and 1959[34] one will note something quite similar: apart from many (sometimes legitimate) criticisms of Noth's positions, one sees in him the development of a strong critical spirit as to the reliability of the traditions concerned, which his positive attitude does not trouble to conceal. I do not want to say by this that time will come when they will fully agree; I doubt that this would be desirable. But I am bound to believe that sound scholarship, by all forms of disagreement, will always have a "common denominator," given by the very fact of reciprocal soundness. Science has always advanced through contrasts; syntheses were achieved after long disputes. This the old Rabbis knew; perhaps we need to discover it anew today.

31. Wright, "The Literary and Historical Problem of Joshua 10 and Judges 1," *Journal of Near Eastern Studies* 5 (1946), pp. 105-114.
32. For the latter, Bright accepts the hypothesis proposed by Albright in 1939 which links the ruins of Ai with Bethel's destruction. *Cf.* also note 20a.
33. "Hat die Bibel . . ." and "Der Beitrag . . ."
34. *Early Israel* . . . and *History*.